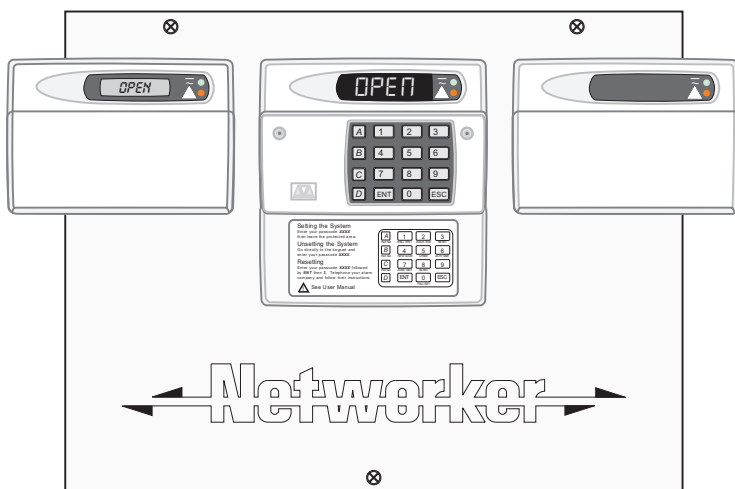




TS700

Intruder Alarm Control Panel



Installation & Programming Instructions

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Installation Record

Overview

Introduction

The TS700 intruder alarm control system is provided for domestic and commercial intruder alarm systems conforming to BS4737: part 1: 1986. The system consists of a control panel and at least one remote keypad.

Control Panel

The control panel is the controlling unit for the alarm system with its own power supply and an internal battery (supplied separately) for use during a mains failure.

It has the following facilities:

- Eight programmable detection circuits
- Bell and strobe output
- Four programmable high current outputs
- Eight programmable digicom output
- Connection for a plug-on digicom
- Extension loudspeaker output (16 Ohms)
- 1.5 Amp power supply
- All system data stored in a Non-Volatile Memory (NVM)

Remote Keypads and LECs

The TS700 system will accept three types of remote keypads: The NETLED remote keypad has a 4 x 7 segment LED display and a power indicator. The NETSTAR remote keypad has a 8 character LCD display and a power indicator. The NETARM remote arming keypad has a power indicator and a programmable function LED. The Local Expansion Card (TS700.LEC) provides the means of adding two detection circuits without the need of using a remote keypad. All device types can be used on the same system, providing the total does not exceed four. Each device provides the following facilities:

- Two programmable detection circuits
- A programmable output

Options

Additional equipment may be connected to the TS700:

- A plug-on digital communicator type DC54 or DC58 can be fitted inside the control panel to transfer panel status information to a dedicated alarm receiving centre via the BT network.
- Other types of digital communicators, RedCARE STU or Paknet interface card can be connected to the control panel to transfer panel status information to a dedicated alarm receiving centre via the BT network.

- A printer type CPA6.P (obsolete) or a standard RS232 serial printer via a Menvier Printer Adaptor (MPA/DCI) can be connected to provide a printout of the 200 log events and system parameters.
- An output module type CPA6.OM can be connected to provide an output to a set of LEDs/relays to indicate circuit activation. Each module will provide up to eight circuit indications and two modules can be "daisy chained" to provide up to sixteen outputs.

Specifications

Input Voltage:	240V +/-10% 50Hz
Control Panel:	110mA (normal) 190mA (alarm with extension speaker)
Power Supply Rating:	1.5 Amp
NETSTAR Remote Keypad:	50mA (normal) 60mA (alarm)
NETLED Remote Keypad:	60mA (normal) 70mA (alarm)
NETARM Arming Keypad:	30mA (normal) 40mA (alarm)
Battery:	12V 7Ah Sealed Lead Acid type
Zones with tamper loops:	10 - 16
Panel dimensions:	383w x 312h x 95d mm
Panel weight (w/o battery):	4.4kg
Remote Keypad dimensions:	150w x 100h x 30d mm
Remote Keypad weight:	280g
Environment:	0 - 55 °C

System Configuration

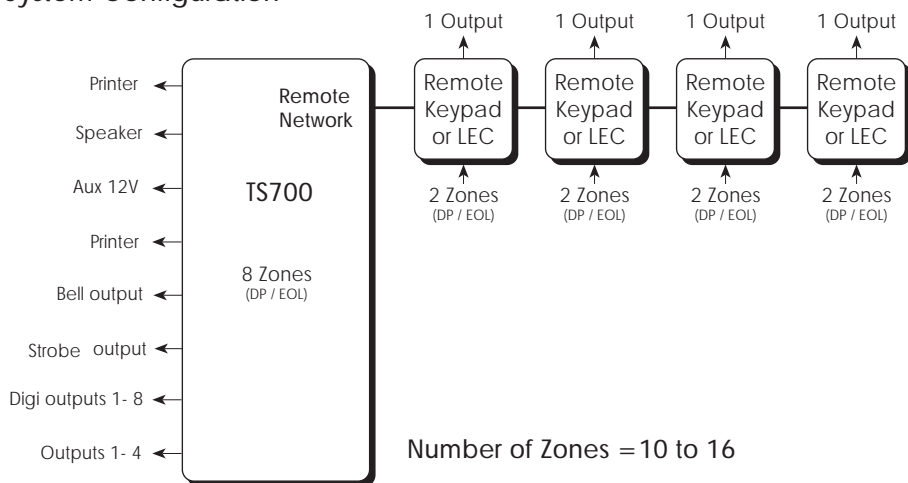


Figure 1. TS700 System Configuration

System Installation


Cable Routing

When installing cables ensure that detection, remote keypad, bell and mains cables are kept separated from each other and that panel internal wiring is clear of the main PCB.

Installing The Control Panel


Proceed as follows:


1. Open the control panel by removing two screws from the front cover. Remove the cover by sliding it up slightly to disengage the bottom clip, disconnect the earth bonding cable from the spade connection on the front cover, then lift clear.
2. Note the position of the cable entries as follows:
 - (a) Ten 20mm cable entries and for detection, alarm and remote keypad cables.
 - (b) A 20mm cable entry for mains (240V) below the mains input terminal block.

 ***The mains cable must enter the control panel through its own cable entry and must not be mixed with other cables.***
3. Hold the control panel back box in the required position (keyhole to the top) and mark the centre of the keyhole position. Remove the back box, drill and plug the hole.
4. Screw a No 10 screw into the plugged hole. Re-position the back box and mark the remaining four securing holes. Remove the back box, drill and plug the holes.
5. Re-position the back box and secure using not less than 30mm x No 10 screws through the four dished 5mm holes.
6. Pass all cables into the base via the trunking holes or knockouts, grommeting as appropriate.
7. If required install and connect the following:-
 - (a) Stand alone digicom or RedCARE STU.
 - (b) Plug-on digicom type DC54, or DC58.
 - (c) Output modules type CPA6.OM.
 - (d) Printer type DATAC or serial RS232 via a printer adapter (MPA/DCI).

Mains Connections

The mains supply is connected to a 3 way terminal block connector on the main PCB. All electrical connections must be carried out by a qualified person and comply with the current IEE regulations.

 ***To comply with European regulations the supply should be fed from a readily accessible disconnect device, e. g. un-switched fused spur fitted.***

 ***When making mains connections it should be ensured that if the cable slips in such a way as to place a strain on the conductors, the protective earthing conductor will be the last to take the strain.***

PCB Layout

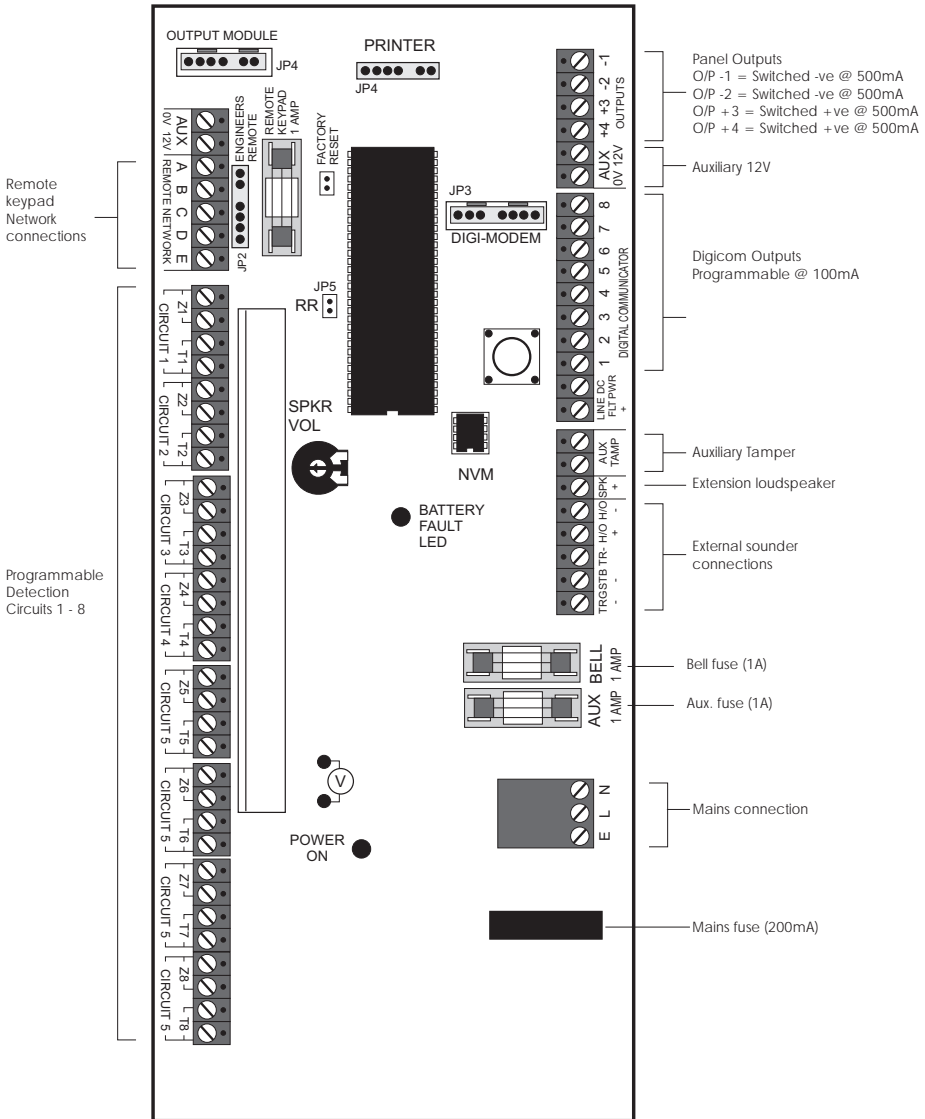


Figure 2. TS700 Main PCB Layout

Wiring Detection Circuits

All detection circuits may be wired as "End of line" (EOL) or "Double Pole" (DP). Both methods can be used on the same system.

Double Pole (DP)

The DP method requires the following:

- The detector alarm and tamper contacts are connected to the zone and tamper terminals respectively.
- The combined alarm and tamper loop resistance must be less than 100 Ohms.
- The maximum number of detection devices allowed in a circuit is ten.
- Normally open devices such as pressure pads and exit terminator buttons are connected between the zone and tamper terminals.
- If the detection circuit is not used links can be fitted across the zone and tamper loops or programmed as Not Used.

End Of Line (EOL)

The EOL method requires the following:

- The detector alarm contacts must have a 4K7 shunt resistor fitted.
- A 2K2 End of Line (EOL) resistor must be fitted at the point in the circuit furthest from the control panel.
- Loop resistance with the EOL resistor shorted must be less than 100 Ohms.
- The maximum number of detection devices allowed in a circuit is ten.
- Normally open devices such as pressure pads and exit terminator buttons are connected across outer terminals
- If the detection circuit is not used links can be fitted across the zone and tamper loops or programmed as Not Used.

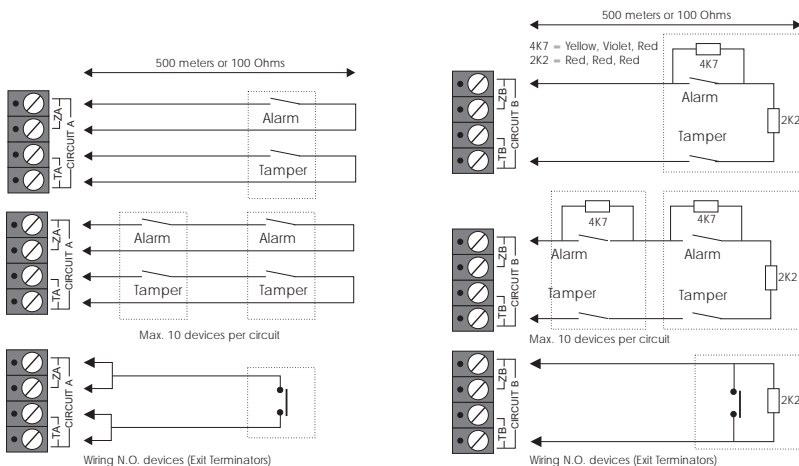


Figure 3. DP and EOL Circuit Connections

Installing Remote Keypads and LECs

The following types of devices may be connected to the control panel:


- NETLED - 4 x 7 Segment LED display.
- NETSTAR - 8 Character Starburst LCD display.
- NETARM - Remote Arming station (Power LED & programmable "Function" LED).
- TS700.LEC - 2 zone local expansion card.

Any combination of devices can be used on the same system, providing the total number does not exceed four.

1. Always ensure that all power (mains and battery) is removed before making any connections to the remote keypad.
2. Separate the cover and base by using a screwdriver to push 2 of the clips (top or bottom) inward from the base indents, then lift the cover assembly, noting that the PCB is fixed to the under side of the cover.
3. Hold the base in position (keyhole to the top) and mark the three securing holes, drill and plug the wall as required. Pass all the cables into the base via the cable entry points as appropriate and secure the base to the wall.
4. Connect "Remote Network" and detection circuit cables to the appropriate terminals, see Figure 4.
5. Set the I/D selector jumper link to the required position:

I/D Selector	Circuit A	Circuit B	Panel Output
1	09	10	5
2	11	12	6
3	13	14	7
4	15	16	8
ENG / NULL	N/A	N/A	N/A

 *No two remote keypads or LECs should have the same I/D.*

 *If the I/D is set to "ENG" the remote keypad will function as an Engineer's keypad allowing it to be plugged onto the control panel so that system programming and testing may be carried out (see Engineer's Keypad).*

6. For details on all remote keypad option links, please refer to the instructions supplied with the remote keypad.
7. Finally clip the remote keypad cover onto the base being careful not to trap any cables or to obstruct the tamper switch.

Engineer's Keypad

Normally all system programming will be carried out from one of the installed remote keypads. However sometimes it may be more convenient to program the system at the control panel, this can be achieved by using an Engineers Keypad. This is temporarily plugged on to the control panel (JP2). To convert a standard remote keypad to an "Engineers Keypad" an interface lead can be obtained from your supplier (P/No. NETEKI).

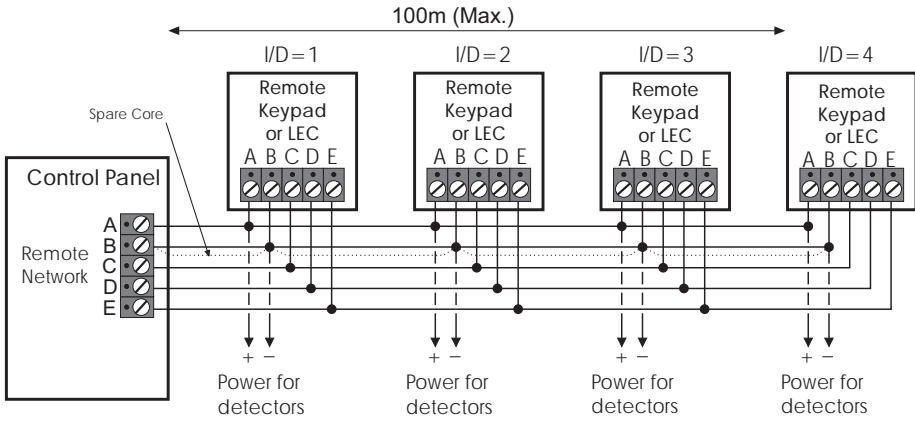


Figure 4. Remote Keypad & LEC connections

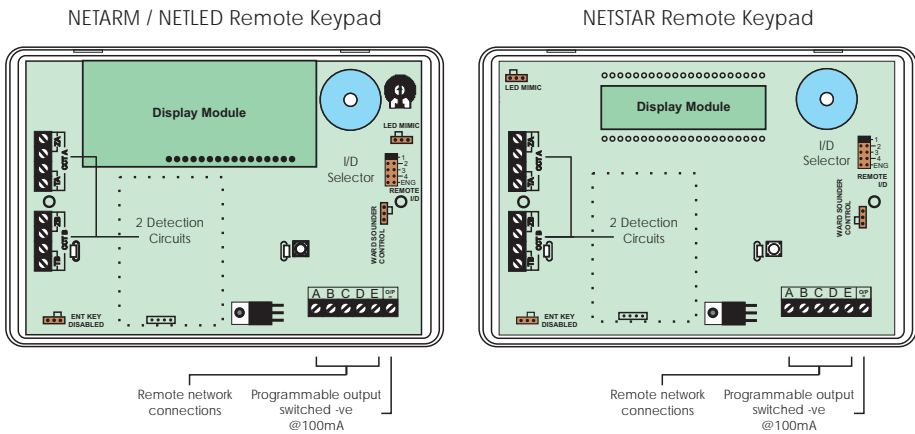


Figure 5 NETARM, NETLED & NETSTAR Remote Keypads

Installing a Plug-on Digicom

1. A digicom type DC54 or DC58 can be fitted in the base of the TS700 main panel. The unit should be fitted in accordance with the installation instructions supplied with it and connected to JP3.
2. The alarm channels for the plug-on digicom are programmed as required (page 16). It will be necessary to fit a programmed NVM in the digicom or to program it in accordance with the instructions supplied with the unit.

Installing a stand-alone Digicom or RedCARE

A stand-alone digital communicator, Red CARE STU or Paknet interface card can be connected to the system to transfer panel alarm status information to a dedicated alarm receiving centre. The control panel has the following connections (Figure 6) for a digicom etc.

- 1 to 8 - These are the programmable digicom outputs. They are normally at +12V and switch to 0V when active.
- +DC POWER - This provides a permanent +12V power to the digicom. The output is un-fused and therefore should only be used if the digicom is fitted inside the control panel.
- LINE FLT - When this input is switched to +12V a telephone line fault condition will be generated.
- REM RESET - If the system is programmed for "Engineer Reset", then after a full alarm the system will require resetting, normally this is done by the engineer or coded remote reset. Applying a -ve to this input terminal will cause the system to reset after a full alarm. This input could be connected to the "Control" output on a RedCARE STU so that the Alarm Receiving Centre can poll the STU and thus reset the panel.

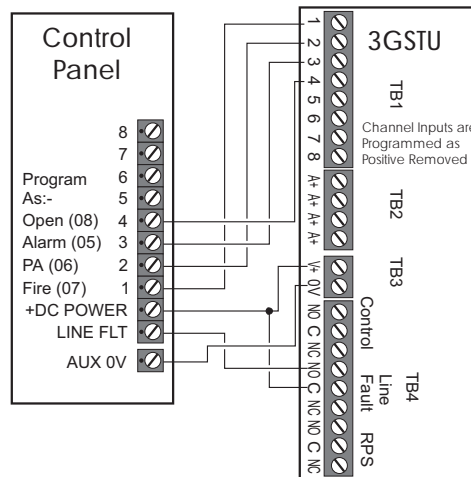


Figure 6. 3GSTU RedCARE Connections

Sounder Connections

The external and internal sounder can be connected to the control panel using the following connections:

- AUX TAMP - These terminals provide tamper protection to auxiliary devices such as power supplies, extension loudspeaker units etc.
- SPK + - Extension loudspeakers may be connected between [SPK+] and [H/O-]. The minimum impedance is 16 Ohms. Up to two may be connected to the control panel.
Do NOT run extension loudspeakers within the same cabling as remote keypads or LECs.
- H/O - - This is used to provide a permanent -ve hold off to external sounders.
- H/O + - This is used to provide a permanent +ve hold off to external sounders, strobes etc. It is protected by a 1 Amp fuse (Bell 12V).
- TR - - This is the negative tamper return connection from the siren or bell.
- STB - - This is the strobe output which will switch to 0V on alarm and draws a maximum of 500mA. Connect the other side of the strobe to the [H/O +].
- TRG - - This output can be programmed to be either an SAB or SCB and operates as follows:
SAB: TRG - will switch to 0V on alarm and will sink a maximum of 500mA.
SCB: TRG - will provide a negative hold off, which is removed on alarm.

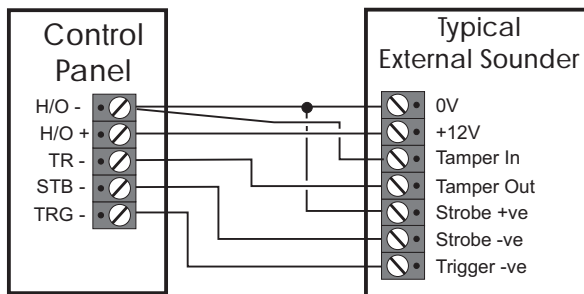


Figure 7. External and Internal Sounder Connections

Installing Output Modules

Output modules (CPA6.OM) can be used to provide an output to a set of LEDs to indicate circuit activations (mimic). Output modules will normally be fitted inside the equipment they are controlling and can be positioned up to 500 metres away from the main panel. They may be fitted inside the TS700 by fitting posts and securing them to the base. The output module should be used and connected in accordance with the output module instructions provided (Figure 8).

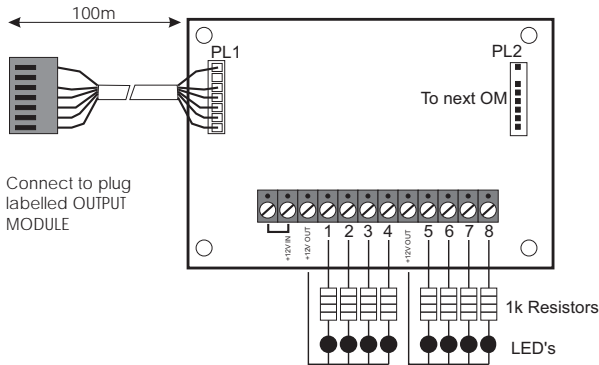


Figure 8. Output Module Connections

Connecting a Printer

The printer model type CPA6.P (obsolete) may be directly plugged on to the control panel plug labelled PRINTER. Alternatively other models such as the DATAC or any standard RS232 serial printer can be connected to the control panel via a MPA/DCI. Menvier Security supply a DATAC printer kit which consists of a portable RS323 printer, charger and DCI. The DCI can be purchased separately if you require to source your own RS232 printer.

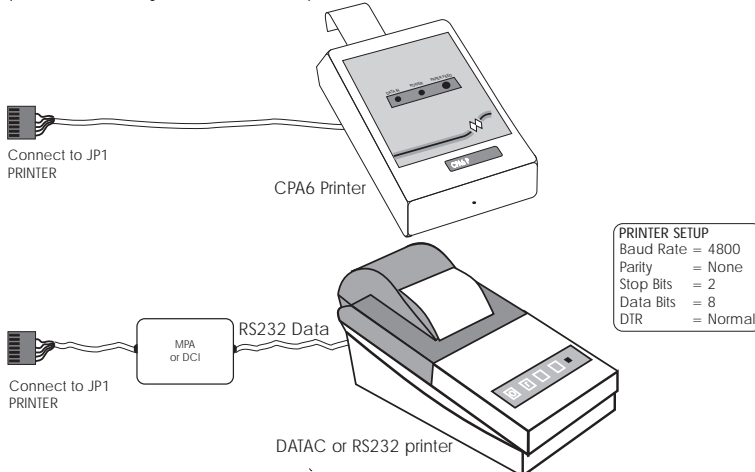


Figure 9. Datac Printer Set-up and Connections

Programmable Outputs

The TS700 has many programmable outputs which can be used to drive relays, LED's etc. Each output can be programmed for a different function, see "Programmable Output Types" on page 17.

Control Panel Outputs

The control panel has four high current programmable outputs:

- [-1] - Set of voltage free changeover contacts rated at 1 Amp.
- [-2] - Switched -ve output rated at 500mA.
- [+3] - Switched +ve output rated at 500mA.
- [+4] - Switched +ve output rated at 500mA.

Remote keypads & LEC Outputs

Each remote keypad and TS700 LEC has one programmable output:

- [O/P] - Switched -ve output rated at 100mA.

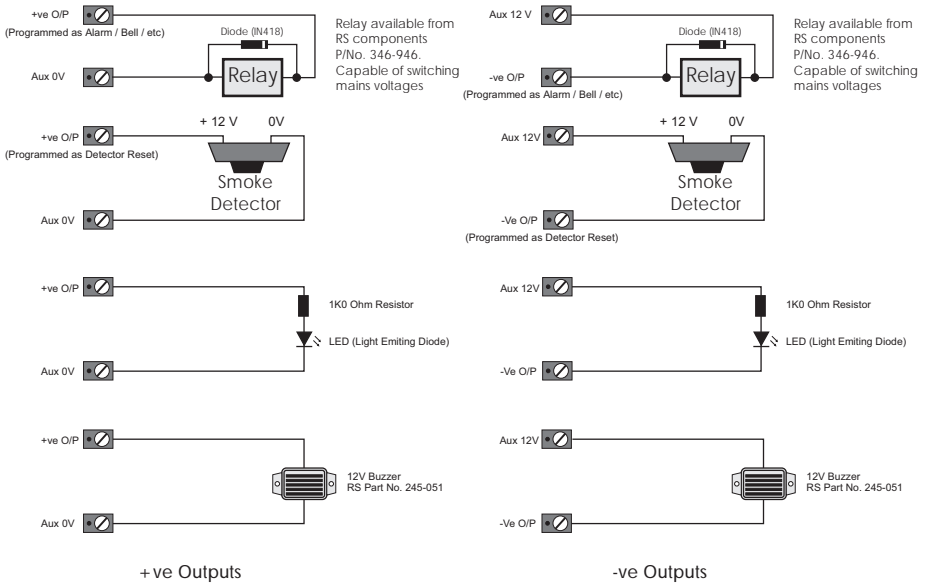


Figure 10. Programmable Outputs Wiring Examples

Pre Power-Up Checks

Once the system is installed, but prior to powering-up give the system one final check to ensure that:

1. The wiring conforms to the requirements detailed in this manual and that all interconnections are correct (A to A, B to B etc.).
2. All system cables are kept clear of mains supply cables, telephone cables and R.F. cables. It is recommended that cable ties be used to keep cables separated.
3. Verify that maximum cable lengths and resistances are not exceeded.
4. Mains power supply cables to the system are connected to an un-switched fused spur.
5. Grommets are used where cables enter metal housings to ensure that insulation is not compromised.

Initial Power-Up

To power the system for the first time:

1. Place a small screwdriver blade between the pins on the control panel PCB, marked "FACTORY RESET". This will ensure the factory default parameters are set (see Table 1).
2. Switch on the 240V mains supply and remove screwdriver blade.
3. Check that power LED on the control panel PCB is illuminated.
4. Check that the remote keypads display "LE" (Panel Lid tamper). The remote keypad sounders and extension loudspeakers will operate.
5. Enter the engineers passcode (default 1234) to silence the sounders.
6. Connect the standby battery.

Power-Up Checks

When the initial power-up checks have been completed, check the following:

1. Using a voltmeter measure the DC voltage at each remote keypad and ensure the voltage is greater than 11V whilst running on the system standby battery.
2. Using a voltmeter measure the DC voltage between mains earth and +12V, and the voltage between mains earth and 0V. In both cases the measurement should be 1V or less. If the Voltage is greater than 1V, the system has an "Earth Fault" and all cables should be checked for isolation to earth.
3. Using a voltmeter set to a low DC voltage range, measure the voltage across the control panel PCB test point (V). To calculate the system current consumption multiply the reading by ten, e.g., a reading of 70mV = 700mA. Ensure that the reading is not greater than 1.0A.
4. Repeat test (3) with the system in an alarm condition and ensure that the reading is not greater than 1.0A.
5. The system is now ready to be programmed see "Programming".

Factory Default Parameters

Engineer's code	1234							
Master User code	5678							
Panel and Remote Outputs	1	2	3	4	5	6	7	8
	Walk Test	Courtesy Light	Switched 12V	Detector Reset	Code Accepted	Code Accepted	Code Accepted	Code Accepted
Digicom Outputs & Channels	1	2	3	4	5	6	7	8
	Fire	PA	Alarm	Set	Eng on Site	Bell On	Tamper	Second Alarm
Detection Circuits	01: Final Exit		02: Night (access)		03-06: Night		07: Exit Terminator	
	08: PA Audible		09: Final Exit		10: PA Audible		11-16:Not Used	
System Timers	0		1		2		3	
	ACPO Delay 0 seconds		No Re-arms 0		Settling Time 07 seconds		Digicom Delay 0 Seconds	
	4		5		6		7	
	Exit Time 30 Seconds		Entry Time 30 Seconds		Bell Duration 20 Minutes		Bell Delay 0 Minutes	
	8		9					
	Double Knock 0 Seconds		Test Time 14 Days					
Setting Modes	Full Set Final Exit		Part Set A Timed Exit		Part Set B Timed Exit		Part Set C Timed Exit	
Reset Algorithm	004							
System Configuration	0		1		2		3	
	Bell output is SAB		User 1 has access to all user menus		Fire signalled at all times		24 Hour circuits are audible	
	4		5		6		7	
	bell is delayed for 30 seconds in part set		Alarm output is cleared on reset		Setting with line fault or mains failure is allowed		System reset by user	
	8		9					
	Continuous entry and exit tones		Engineer code only for access to engineer menus					

Table 1. Factory Default Parameters

Programming

Engineer Menu 1

Engineers menu 1 is selected when the engineer's passcode is entered during the unset condition. The engineer may leave engineer menu 1 by pressing the [ESC] key. The system will return to the unset condition but the remote keypads will show: "ENG ON SITE". This message will be cleared the next time a valid user passcode is entered. When engineers mode is selected the monitoring of tamper circuits is disabled.

Panel Outputs

Outputs 1 to 4 for the control panel and 5 to 8 for the remote keypads can be programmed to any of the output function types 0 to 55 as listed in Table 2 on page 15.

1. Ensure that "Engineer Menu 1" is selected.
2. Press **[1]** to select the Panel Outputs option.
3. The display will show: **PAN-**
4. Enter the required output number 1 to 8.
5. The display will show the current output function (Table 2).
6. Enter the new function number and press **[ENT]**.
7. The display will return to step 3. Repeat steps 4 to 7 for the remaining outputs.
8. Press **[ESC]** to return to "Engineer Menu 1".



Enter panel output 1 - 4 or remote output 5 - 6.



Enter new output type 00 - 55 (see Table 2.)

Digicom Outputs

The eight switched -ve Digicom outputs 1 to 8 may be connected to the Digicom channel inputs. The outputs may be programmed to any of the function types 0 to 55 (Table 2).

1. Ensure that "Engineer Menu 1" is selected.
2. Press **[2]** to select the Digicom Outputs option.
3. The display will show: **d 19-**
4. Enter the required digicom output number 1 to 8.
5. The display will show the current output function (Table 2).
6. Enter the new function number and press **[ENT]**.
7. The display will return to step 3. Repeat steps 4 to 7 for the remaining digicom outputs.
8. Press **[ESC]** to return to "Engineer Menu 1".



Enter digicom output 1 - 8.



Enter new output type 00 - 55 (see Table 2.)

Plug-on Digicom Channels

The eight channels for the plug-on digicom may be programmed to any of the function types 00 to 55 (Table 2). The procedure is similar to programming the digicom outputs (above).

1. Follow above procedure, except press **[3]** at step 2.



Enter digicom output 1 - 8.

No	Type	Function
00	Bell On	Active when the external Bell trigger is activated.
01	Strobe	Active when the Strobe trigger is activated.
02	SW12	Used to latch devices in an alarm. Active when the system is set.
03	Detector Reset	Used to power devices which require power to be removed to reset them.
04	Walk Test	Active when a Walk Test is in progress.
05	Alarm	Active when intruder alarm is present.
06	PA	Active when a PA alarm is present.
07	Fire	Active when a Fire alarm is present.
08	Set	Active when the system is Set.
09	Code Accepted	Active for 10 seconds when any valid passcode is entered.
10	24 Hour	Active when a 24 hour circuit is in alarm.
11	Second Alarm	Active when a second circuit causes an alarm, use for ALARM CONFIRMATION.
12	Courtesy Light	Active when any keypad is in use.
13	Engr on Site	Active when the engineer's passcode is entered until a User passcode is entered.
14	Ccts Omitted	Active when circuits are omitted.
15	Auxiliary	Active when an Auxiliary circuit is in alarm.
16	Sndr Control	Can be used as the 0V connection to an extension loudspeaker so that the sounder is muted during keypad entries. Only suitable for panel outputs 1 & 2.
17	Area Set A	Active when area A is Set.
18	Area Set B	Active when area B is Set.
19	Area Set C	Active when area C is Set.
20	Tamper	Active when a Aux, or circuit tamper is triggered.
21	Line Fault	Active when a digicom telephone line fault occurs.
22	Mains Off	Active when mains power is removed.
23	Exit/Entry	Active during exit and entry.
24	Test Fail	Active when a circuit on Test is activated.
25	First Knock	Active when a double knock is activated for the first time.
26	DC Failed	Active if the digicom fails to communicate.(plug-on)
27	DC Successful	Active when the digicom sends a message and it is acknowledged. (plug_on)
28	DC Active	Active while the digicom is triggered.(plug-on)
29	Second Entry	Active when the second entry timer is started.
30	Entry	Active when the system is set or part set and the entry route is in use.
31	Exit	Active when the system exit procedure is started.
32	Part Set C fail	Active when Part Set area C fails to set.
33	Part Set B fail	Active when Part Set area B fails to set.
34	Part Set A fail	Active when Part Set area A fails to set.
35	Part Set	Active when ever the system is Part Set.
36	Area C Alarm	Active when Area C Alarms.
37	Area B Alarm	Active when Area B Alarms.
38	Area A Alarm	Active when Area A Alarms.
39	Duress Alarm	Active when a duress code is entered at a keypad.
40- 55	Circuit mimic	Will mimic (active when circuit is active) circuits 1 to 16 respectively .

Table 2. Programmable Output Functions

Detection Circuits and Attributes

Detection circuits 1 to 8 for the panel and 9 to 16 for the remote keypads/ LECs are programmed as follows:

1. Ensure that "Engineer Menu 1" is selected.
2. Press **[4]** to select the Circuits and Attributes option.
3. Select circuit number (01 - 16) and press **[ENT]**. The current circuit type will be displayed.
4. Enter the new circuit type, using keys 0 to 9, or A, B or C (Table 3). Press **[ENT]** to accept.
5. The circuit number, type and attributes are displayed in turn.
6. Select new attributes by using keys 1 to 5 (Table 4) these will "toggle" the attributes on & off. Press **[ENT]** to accept.
7. Continue for remaining circuits with steps 3 to 5.



Enter circuit number 01 - 16.



Enter new circuit type 0 - 9 or A, B or C (see Table 3.)



Press 0 - 5 to 'toggle' circuit attributes on & off (see Table 4.)

Key	Display	Circuit Type
[0]	Not U	Not Used - A circuits that is not monitored.
[1]	NITE	Night - A circuit that will generate a full alarm when the system is set.
[2]	24HR	24 Hour - A circuit which is monitored at all times. When activated in the unset condition a local alarm is generated and when activated in the set condition a full alarm is generated.
[3]	PA S	PA Silent - A circuit which is monitored at all times. When activated it will signal a P.A. on the Digicom outputs and activate any other outputs that have been programmed as P.A.
[4]	PA A	PA Audible - A circuit which is monitored at all times. When activated it will signal a P.A. on the digicom outputs, activate any other outputs that have been programmed as P.A. and generate a full alarm condition.
[5]	FIRE	Fire - A circuit that is normally connected to a smoke or heat detector. When activated it will generate a fire tone on internal sounders and the external sounders are pulsed.
[6]	AUX	Auxiliary - A circuit which is monitored at all times. When activated it will cause any of the outputs that have been programmed as 'Auxiliary' to go active.
[7]	FE	Final Exit - This must be the last detector or door contact that is activated when leaving or entering the protected area. When the setting mode for the area is programmed for "Final Exit" setting, opening and closing of this circuit during the exit procedure will cause the system or area to set. Once set, activation of this circuit will start the entry timer.
[8]	ET	Exit Terminator - A circuit that is normally connected to a push button outside the protected area, which operates as follows: a) When the setting mode is programmed as "Timed Exit", activation of this circuit will cause any remaining exit time to be truncated to zero. b) When the setting mode is programmed as "Exit Terminator", the area will set when the Final Exit circuit has been operated and the exit terminator button is pressed.
[9]	FULL	Full Set Keyswitch - A circuit which can be connected to a keyswitch to allow the system to be full-set (active) and unset (healthy).
[A]	PSA	Part-Set A Keyswitch - A circuit which can be connected to a keyswitch to allow part-set group A to be set (active) and unset (healthy).
[B]	PSB	Part-Set B Keyswitch - A circuit which can be connected to a keyswitch to allow part-set group B to be set (active) and unset (healthy).
[C]	PSC	Part-Set C Keyswitch - A circuit which can be connected to a keyswitch to allow part-set group C to be set (active) and unset (healthy).


Table 3. Circuit Types

Key	Display	Attribute Type
[1]	ACC	Access - Circuits programmed with this attribute are automatically isolated during the entry procedure to allow a "walk through" route for the user to access the remote keypad. When the system is part set activation of a circuit with the "Access" attribute will start the entry timer. The Access attribute may only be assigned to Night circuit types.
[2]	2KNC	Double Knock - Circuits programmed with this attribute will only cause an alarm if: a) The circuit is activated twice within the Double Knock window (this time may be set in the System Timers menu). b) The circuit remains active for the whole duration of the Double Knock window. The Double Knock attribute may only be assigned to Night, 24hr and Auxiliary circuit types.
[3]	TEST	Test - Circuits with this attribute will be disabled from the system for the period set by the "Test Time" (see System Timers). If the circuit is activated during this period the activation will be logged and the user is informed of the circuit failure when trying to set the system. The test fail message may only be cleared with the engineer's passcode. If at the end of the test period no activations have occurred the circuit is automatically removed from test and behaves as normal. The test period is initiated by entering the engineer's passcode. The test attribute may only be assigned to Night, 24hr, PA Silent, PA Audible, Fire and Auxiliary circuit types.
[4]	ISOL	Isolate - Circuits with this attribute are allowed to be omitted by the user when setting the system. The isolate attribute may only be assigned to Night, 24hr and Auxiliary circuit types.
[5]	RESET	Reset - This attribute is normally assigned to a circuit that is connected to a Vibration or Smoke detector, so that during the "Detector Reset" period the circuit is not monitored. The Reset attribute may only be assigned to Night, 24hr, Fire and Auxiliary circuit types.

Table 4. Circuit Attributes

System Timers

There are ten separate system timers which are shown in Table 5a and 5b.

1. Ensure that "Engineer Menu 1" is selected.
2. Press [5] to select the System Timers option.
3. The display will show: .
4. Enter the required timer number 0 to 9.
5. The display will show the current timer setting.
6. Enter the new timer value and press [ENT].
7. The display will return to step 3. Repeat steps 4 to 7 for the remaining outputs.
8. Press [ESC] to return to "Engineer Menu 1".

Enter timer number 0 - 9. (see Table 5a & 5b)



Enter timer value 000 -199. (see Table 5a & 5b)

Key	Timer	Range	Function
[0]	ACPO Delay	0-199 sec	For ACPO requirements this timer is normally set to 90 seconds. If during the entry procedure the user deviates from the entry route and causes an alarm, the communication of the alarm signal to the central station is delayed by this timer.
[1]	Re-Arms	0-199	At the end of the bell duration time the system re-arms all circuits that are healthy. Circuits that are still in an alarm are isolated until they change to a healthy condition. This timer controls the number of times that a circuit will re-arm before it is locked out of the system.

Table 5a. System Timers

2	Settling Time	0-199 sec	When setting the system by "Final Exit" or "Exit Terminator", detectors that are on the exit route sometimes take 3-4 seconds to settle after activation. The delay programmed in this timer is used to allow these detectors to settle before the system or area is set.
3	Digicom Delay	0-199 sec	When the system is part-set the communication of an alarm signal to the central station may be delayed by the value set in this timer.
4	Exit Time	0-199 sec	This timer sets the delay between the user initiating the exit procedure and the system (or area) actually setting. If during the exit time an Exit Terminator circuit is activated the exit time is cancelled and the system sets immediately.
5	Entry Time	0-199 sec	The time allowed for entering the protected premises via the entry route when the system is (Part) Set. The time is allocated to two entry periods. A warning is given if the first is exceeded and a full alarm occurs if the second is exceeded.
6	Bell Duration	0-199 min	The duration time of the bell and sounders when an alarm occurs.
7	Bell Delay	0-199 min	This timer delays the activation of the bell output and internal sounders.
8	Double Knock	0-199 sec	This is the Double Knock time window in which either: Two circuit activation must occur within this time to generate an alarm condition. Or the circuit must remain active for the whole duration of this time to generate an alarm condition. This will only apply to circuits with the Double Knock attribute
9	Test Time	0-30 days	This timer varies the number of days that Test attribute may be applied to a circuit. If the time is set to 000 then circuits will remain on test until the "Test" attribute is removed.

Table 5b. System Timers

Setting Modes

The system may be set by one of the following modes:

- Final Exit** - The system or area will set when the "Final Exit" circuit is activated and after the "Settle Time" has expired.
- Exit Terminator** - The system or area will set when the "Final Exit" circuit is activated, the "Exit Terminator" button is pressed and after the "Settle Time" has expired.
- Timed Exit** - The system or area will set when the "Exit Time" has expired or if the "Exit Terminator" button is pressed.

The setting mode for full-set, part-set groups A, B and C are programmed as follows:

- Ensure that "Engineer Menu 1" is selected.
- Press **6** to select the Setting Modes option.
- The display will show: **564-**
- Select setting group by pressing:

0 for full-set

A for part-set group A

B for part-set group B

C for part-set group C

- The display will show the current setting mode.




Enter setting group 0,A,B or C.



Enter setting mode 1,2,3 or 0.

6. Select new setting mode by pressing:
 - 1 for Final Exit
 - 2 for Exit Terminator
 - 3 for Timed Exit
 - 0 to 'toggle' between all three options
7. When the display shows the required setting press **ENT** to accept. The display will return to step 3. Repeat steps 4 to 7 for the remaining setting groups.
8. Press **ESC** to return to "Engineer Menu 1".

 When using part set codes to set areas, the first area that is set will follow the setting mode defined by that area. Any subsequent areas will always use the timed exit method.

System Print

A print-out of all system parameters may be obtained so that a permanent record of the system program details may be kept.

1. Ensure that "Engineer Menu 1" is selected.
2. Press **7** to select the System Print option.
3. The display will show the line that is being printed (Ln01).
4. Press **ESC** to stop printing and return to "Engineer Menu 1".



Press ESC to cancel printing.

Remote Reset Algorithm

When the system requires an Engineer Reset this may be over ridden by using the Remote Reset facility. To provide additional security the way in which the "Reset Code" is generated can be selected to be one of 199 algorithms (default=004).

1. Ensure that "Engineer Menu 1" is selected.
2. Press **8** to select the Reset Algorithm option.
3. The display will show the current setting.
4. Enter the new number and press **ENT** to accept.



Enter new number 000 - 199.

System Configuration

There are ten system configuration options which are shown in Table 6.

1. Ensure that "Engineer Menu 1" is selected.
2. Press **9** to select the System Configuration option.
3. The display will show: con-
4. Enter the required configuration number 0 to 9.
5. The display will show the current setting. Press **0** to "toggle" between YES and NO. Press **ENT** to accept.
6. The display will return to step 3. Repeat steps 4 to 6 for the remaining system configuration options.
7. Press **ESC** to return to "Engineer Menu 1".



Enter configuration number 0- 9 (see Table 6).



Press 0 to 'toggle' the option between YES or NO. (see Table 6).

Key	YES	NO
0	Bell output is set for SAB	Bell output is set for SCB
1	Disable Master User from menu 2 options 4-9	Master user has access to all options in menu 2
2	Fire Signalled when Unset/Part Set/Full Set	Fire signalled only when full Set
3	24hour circuits silent when Unset	24hour circuits audible when Unset
4	Bell is instant when Part Set	Bell is delayed when Part Set (30 secs)
5	Alarm output (05) cleared when system is unset	Alarm output cleared when system is reset
6	Setting inhibited with line fault/no mains power	Setting allowed with line fault/no mains power
7	System reset by User or Engineer	System reset by Engineer or Remote Reset
8	Continuous Entry and Exit tones	Rising Entry and Exit tones
9	Engr & Remote Reset code to gain access to E1/E2	Engr code gains access to E1 and E2 menus

Table 6. System Configuration options

Engineer's Menu 2

This menu is selected by pressing the [ENT] key whilst "Engineers menu 1" is selected. There are ten programming options within this menu, which can be selected in any order. The engineer can leave this menu and return to "Engineers Menu 1" by pressing the [ESC] key.

View Circuits

This option allows the engineer to view the status of each detection circuit. The circuit status conditions are **H**=Healthy, **A**=Active, **S**=Shorted or **T**=Tamper.

1. Ensure that "Engineer Menu 2" is selected.
2. Press **1** to select the View Circuits option.
3. The circuit status will be displayed.
4. Select circuits either by entering the number or by pressing **ENT** to scroll through the circuits.
5. Press **ESC** to abandon and return to "Engineer Menu 2".



Circuit 03 is Healthy.



Circuit 03 is Active.

Change Time

The system clock may be changed using 24 hour clock format.

1. Ensure that "Engineer Menu 2" is selected.
2. Press **2** to select the Change Time option.
3. Enter the time in 24 hour notation (e.g., 1805).
4. Press **ENT** to accept.



Enter time in 24 hour format.

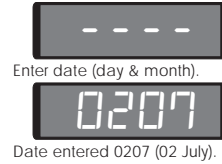


Time entered 1805 (6:05 pm.)

Change Date

The system calendar may be changed by entering the date as four digits representing the day and month e.g., 0207 is the 2nd July.

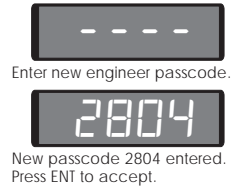
1. Ensure that "Engineer Menu 2" is selected.
2. Press **[3]** to select the Change Date option.
3. Enter the date as four digits.
4. Press **[ENT]** to accept.



Change Engineer's Passcode

The factory default engineer's passcode is set to 1234, but the installation engineer should change this to their own personal four-digit passcode, as follows:

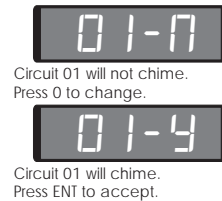
1. Ensure that "Engineer Menu 2" is selected.
2. Press **[4]** to select the Change Engineer's Passcode option.
3. Enter the new passcode then press **[ENT]** to accept.
4. A high tone will indicate acceptance. A low tone sound will indicate that the passcode is not available.



Configure Chime Circuits

This option is used to select the circuits that will chime.

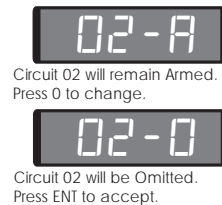
1. Ensure that "Engineer Menu 2" is selected.
2. Press **[5]** to select the Chime Circuits option.
3. Circuits will be displayed as **Y**(Yes) to chime or **N**(No) not to chime. Change status by pressing **[0]** ("toggle" action).
4. Press **[ENT]** to accept (high tone) and go to next circuit. Circuits may be selected by number. Press **[ESC]** to quit.



Configure 24 Hour Omit Group

This option allows the engineer to select the 24 hour circuits that will be omitted when the 24 hour omit option is selected in "User Menu 1" option 6.

1. Ensure that "Engineer Menu 2" is selected.
2. Press **[6]** to select the 24hour Omit Group option.
3. Circuits will be displayed as **O**(Omitted) or **A**(Armed). Press **[0]** to change ("toggle" action).
4. Press **[ENT]** to accept (high note) and go to next circuit. A low tone indicates that the circuit cannot be omitted.
5. Circuits may be selected by number. Press **[ESC]** to quit.



Print System Log

A printer may be connected to produce a print-out of the last 200 system events.

1. Ensure that "Engineer Menu 2" is selected.
2. Press **[7]** to select the Print Log option.
3. Enter the number of events to be printed.
4. Press **[ENT]** to start printing. To stop printing select the menu again and enter 000 as the number of events to be printed.



Enter the number of events to be printed. Press ENT to start.

Configure Part-Set Groups

When the system is part-set certain circuits are omitted. This option allows the engineer to select those circuits to be omitted when part-set A or B or C is selected.

1. Ensure that "Engineer Menu 2" is selected.
2. Press **[8]** to select the Part-Set Groups option.
3. Select the part-set group **[A]** or **[B]** or **[C]**.
4. Circuits will be displayed as **[0]** (Omitted) or **[1]** (Armed). Press **[0]** to change ("toggle" action).
5. Press **[ENT]** to accept displayed status (high tone) and go to next circuit. Circuits may be selected by number.
6. Press **[ESC]** to return to step 3 and **[ESC]** again to return to "Engineer Menu 2".



Enter part-set group A, B or C.



Circuit 01 will remain Armed. Press 0 to change.



Circuit 01 will be Omitted. Press ENT to accept.

View System Log

The time, date and nature of the last 200 events on the system may be viewed starting with the most recent event.

1. Ensure that "Engineer Menu 2" is selected.
2. Press **[9]** to select the View Log option.
3. The most recent event will be displayed (see Table 7)
4. Press **[A]** to scroll back and **[C]** to scroll forward. Press **[B]** to show the time of the event (first press), the date (second press) the time in minutes and seconds (third press).
5. Press **[ESC]** to abandon.



Log event showing 'Circuit Alarm 01'. Press A to scroll back or C to scroll forward. Press B to view time and date.

Reset Master User 1

This option allows the engineer to reset the master user passcode back to the factory default code '5678'. This feature is useful when the master user has forgotten their passcode or has inadvertently changed it.

1. Ensure that "Engineer Menu 2" is selected.
2. Press **[0]** to Reset User 1.

AA	Action Alarm (Alarm output activated)	LE	Lid Tamper or SAB tamper
Ac.**	Access Passcode (User code **entered with the last two digits reversed)	OP	System Open (unset)
Ad.**	Alarm Delayed (the system is part set and circuit ** was activated)	Or	Omits Removed
Au.**	Auxiliary Alarm (circuit number **activated)	PA.**	PA Alarm (from circuit number **)
bF	Battery Fault (battery voltage below 10.5V)	PF	Power Failure (remote power LED flashes)
bE	Bell Test	Pr	Power Restored
CA.**	Circuit Alarm (from circuit number **)	PS.*	Part Set (area *)
cc	Communication Complete (Plug-on only)	PE.**	Code Tamper (from remote keypad **)
cF	Communication Failed (plug-on only)	rA	System re-armed
CI	Circuits Isolated (24 hour circuits)	rc	System reset by REMOTE CODE RESET
CO.**	Circuits Omitted (circuit number **omitted)	rr.**	Remote Keypad ** removed
dc	Date Changed	re.**	Remote Keypad ** case tamper
dF	Default User code 1 to 5678	SF	System Failed to Set
du.**	Duress Alarm (from User code **)	sr	System on-site reset (LK1 open on power up)
EA.**	Entry Alarm (from circuit number **)	SE.*	Area * Set (using area setting codes)
En.**	Entry (from circuit number **)	So.**	Part set keyswitch ** operated
FA.**	Fire Alarm (from circuit number **)	TA.**	Tamper Alarm (from circuit number **)
Fb.**	Fuse Blown (fuse number **)	tc	Time Changed
Fn.**	First Knock (from circuit number **)	tF.**	Circuit ** failed test
Fr	Factory Reset (LK1 closed on power up)	to	All Test circuits removed from test
FS	Full Set	Un.*	Area * unset (using area setting codes)
Lb	Low Battery	Ur.**	User Code ** entered
LF	Telephone line fault	- -	No event
Lr	Telephone line restored		

Table 7. Event Log Codes

Appendices

Domestic Part-Set Application Example

The TS700 control panel can be configured so that only part of the system is armed. The following example illustrates how the TS700 alarm system is configured so that it protects different areas of a three bedroom detached house. Figure 11 shows the layout of the house and position of the detection circuits and remote keypad.

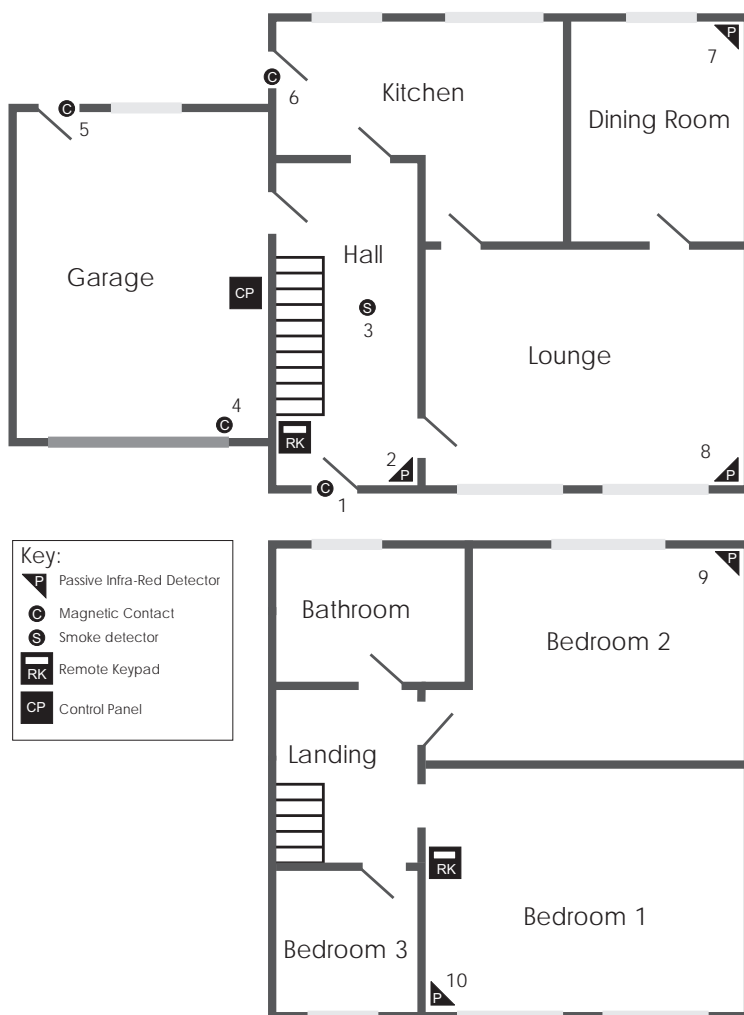


Figure 11. A typical three bedroom house.

Using the plan of the typical three bedroom house, the following part-set arrangements are required by the occupants of the house:


- Full Set** - All circuits to be armed.
- Part-set Group A** - Circuits 9 and 10 to be omitted. This is required for normal night setting when everyone is in the house and have retired to bed.
- Part-set Group B** - Circuit 10 to be omitted. This is required when the occupant of bedroom 2 is away for the weekend.
- Part-set Group C** - Circuits 2, 7, 8, 9 and 10 to be omitted. This is required when only perimeter protection is required.

Programming procedure

1. First create a table listing the circuits that are required to be Armed (A) and Omitted (O) for each part-set group:

Circuit No.	Location	Group A	Group B	Group C
01	Front Door	A	A	A
02	Hallway Detector	A	A	O
03	Smoke Detector	A	A	A
04	Garage up and over door	A	A	A
05	Garage door (back)	A	A	A
06	Kitchen Door	A	A	A
07	Dining Room PIR	A	A	O
08	Lounge PIR	A	A	O
09	Bedroom 2 PIR	O	A	O
10	Bedroom 1 PIR	O	O	O

2. From the above table assign circuits 01 - 10 as "Armed" or "Omitted" for each part-set group, see page 24 for full details.
3. Program the setting mode for each part-set group, see page 20 for full details..

 The PIR in the hallway (circuit 02) will need the "Access" attribute so that first person that comes down the stairs will start the entry timer.

Commercial Part-Set Application Example

This application example demonstrates how to use the "Part-set Codes" to set and unset different areas within a commercial premises. Using the plan of the building the following is required:

- Part-set code A** - The sales manager will be assigned this passcode to access the sales and canteen area.
- Part-set code B** - The workshop manager will be assigned this passcode to access the workshop and canteen area.
- Part-set code C** - The stores manager will be assigned this passcode to access the stores and canteen area.

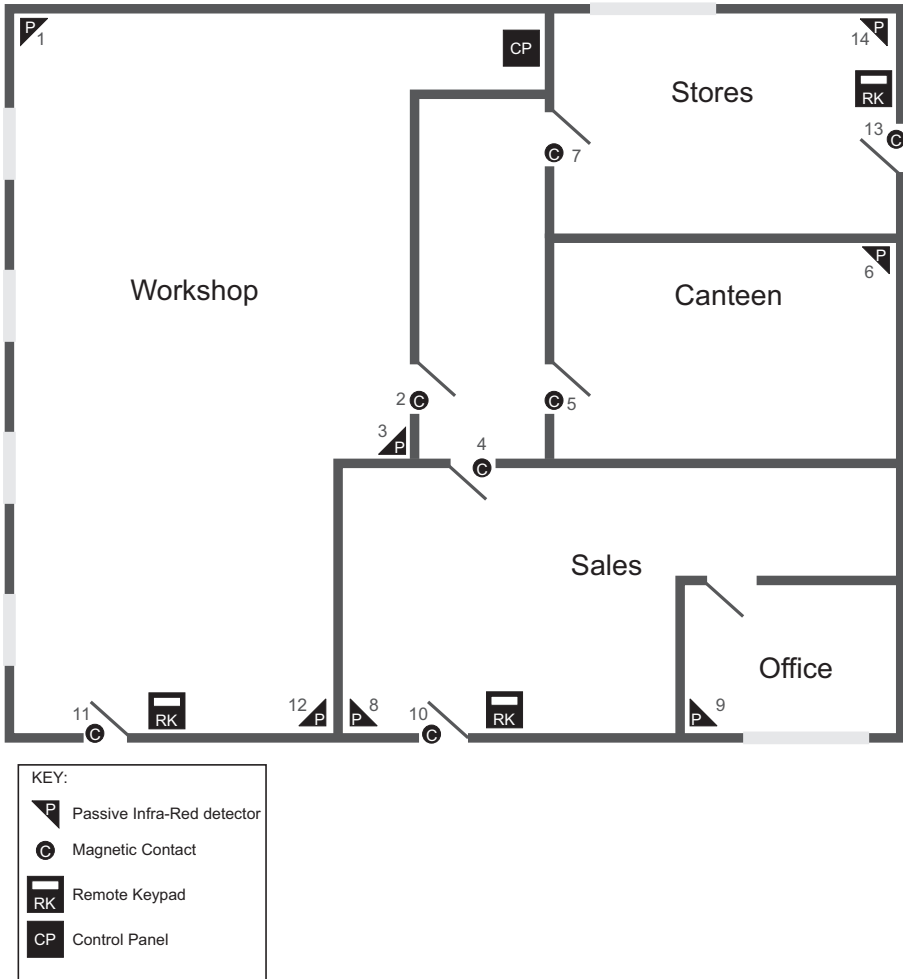


Figure 12. Commercial Premises

The "Part-set Codes" A, B and C only affect the circuits assigned in their respective "Part-set Group" i.e., "Part-set Code A" will set and unset the circuits assigned as "Omitted" in "Part-set Group A".


When configuring the TS700 system to use "Part-set Codes", it is important to think of the system from the full-set state. When a part-set code is entered the circuits that have been assigned as "Omitted" for that "Part-set Group" will be unset. On re-entry of the "Part-set Code" the exit procedure is started and at the end of the exit procedure the circuits that were "Omitted" are armed again.

Programming procedure

1. First, imagine the system is fully set. When "Part-set Code A" is entered certain circuits are required to be "Omitted" whilst others remain "Armed". Create a table listing the circuits that are to be "Omitted" (O) when "Part-set Code A" is entered. The circuits that will not be omitted must therefore remain "Armed" (A). Then imagine the system is fully set again and repeat for "Part-set Codes" B and C.

Circuit No.	Location	Group A	Group B	Group C
01	Workshop PIR (1)	A	O	A
02	Workshop Internal Door	A	O	A
03	Workshop PIR (2)	A	O	A
04	Sales Internal Door	O	A	A
05	Canteen Door	O	O	O
06	Canteen PIR	O	O	O
07	Stores Internal Door	A	A	O
08	Sales PIR	O	A	A
09	Sales Office PIR	O	A	A
10	Sales Entrance Door	O	A	A
11	Workshop Entrance Door	A	O	A
12	Workshop PIR (3)	A	O	A
13	Stores Entrance Door	A	A	O
14	Stores PIR	A	A	O

2. From the above table assign circuits 01 - 14 as "Armed" or "Omitted" for each "Part-set Group", see page 24 for full details.
3. Program the setting mode for each "Part-set Group", see page 20 for full details.
4. Program each "Part-set Code" with a four digit passcode, refer to the "User Operating Instructions".

 If a circuit is "Omitted" in more than one "Part-set Group" (circuits 05 and 06 in our example) it will only be armed when all "Part-set Groups" are set. Using our example, if the system is unset and "Part-set Code A" is entered, the exit procedure is started and at the end of the exit procedure circuits 04, 08, 09 and 10 will be armed. The canteen detection circuits 05 and 06 will remain unarmed until "Part-set Group" B and C are set (system full-set).

Installation Record

Circuit Programming											
No	Location	Type	Access	D-Knock	Test	Omit	Reset	PS A	PS B	PSC	24hr
01											
02											
03											
04											
05											
06											
07											
08											
09											
10											
11											
12											
13											
14											
15											
16											

Outputs								
Output	1	2	3	4	5	6	7	8
Panel & remotes								
Digicom outputs								
Digicom Channel								

System Timers				
Re-arms:	Settling:	Digi Delay:	Exit Time:	Entry Time:
Bell Dur:	Bell Delay:	D-Knock:	Test Time:	ACPO:

Setting Modes			
Full-set	Part-set A	Part-set B	Part-set C

System Configuration				
1: Yes / No	2: Yes / No	3: Yes / No	4: Yes / No	5: Yes / No
6: Yes / No	7: Yes / No	8: Yes / No	9: Yes / No	0: Yes / No

Other		
Algorithm No	Remote Reset Tel No:	Engineer:
Installation Company:		Date:
		Tel No:

Quick Reference Guide

Enter engineer passcode
(Default 1234)

Engineer Menu 1

Press key to select option

1

PANEL OUTPUTS

pan-

2

DIGI OUTPUTS

d19-

3

DIGI CHANNELS

dc3-

4

PROGRAM CIRCUITS

ce--

5

SYSTEM TIMERS

tlr--

6

SETTING MODES

569-

7

SYSTEM PRINT

Ln01

8

ALGORITHM NO

004

9

CONFIGURATION

con-

00 Bell On

01 Strobe

02 SW12V

03 Vpwr Reset

04 Walk Test

05 Alarm

06 P.A.

07 Fire

08 Code Valid

10 24hr

11 2nd Alarm

12 Courtesy Light

13 Eng on Site

14 Circuits Omitted

15 Auxiliary

16 Sounder control

17 Part Set A

18 Part Set B

19 Part Set C

20 Circuit Tamper

21 Line Fault

22 AC Off

23 Exit / Entry

24 Test Fail

25 First Knock

26 DC Failed

27 DC Successful

28 DC Active

29 2nd Entry

30 Entry

31 Exit

32 Part Set C fail

33 Part Set B fail

34 Part Set A fail

35 Part set

36 Area C Alarm

37 Area B Alarm

38 Area A Alarm

39 Duresse Alarm

40 - 55 Circuit Mimics 1-16

CIRCUIT TYPES

1 Night

2 24 hr

3 P.A. Silent

4 P.A. Audible

5 Fire

6 Aux

7 Final Exit

8 Exit Terminator

9 Full Set Key

A Part Set Key A

B Part Set Key B

C Part Set Key C

ATTRIBUTES

1 Access

2 Double Knock

3 Test

4 Isolatable

5 Reset

TIMER OPTIONS

1 No of Re-Arms

2 Settling Time

3 Digicom Delay

4 Exit Time

5 Entry Time

6 Bell Duration

7 Bell Delay Time

8 Double Knock Time

9 Test Time

0 Acpo Delay Time

ATTRIBUTES

1 Final Exit

2 Exit Terminator

3 Trimed Exit

0 Toggle

SETTING MODES

0 Full Set

A Part Set A

B Part Set B

C Part Set C

Press ESC to stop

CONFIGURATION

1 Y=User 1 limited in menu 2

N=User 1 not limited in menu 2

2 Y=Fire signalled in unset/partset

N=Fire not signalled in unset/partset

3 Y=24hr cdis silent in unset

N=24hr cdis audible in unset

4 Y=Bell instant in partset

N=Bell delayed in partset

5 Alarm output cleared when unset

N=Alarm output cleared when unset

6 Y=Setting inhibited with LF/no AC

N=Setting OK with LF/no AC

7 Y=User Reset

N=Engineer Reset

8 Y=Constant Exit tone

N=Rising Exit tone

9 Y=Eng Code + Reset code for access

N=Eng Code for access

0 Y=Bell is an SAB type

N= Bell is an SCB type

From E | - press [w]

Engineer Menu 2

Press key to select option

1

VIEW CIRCUITS

01-H

2

SET CLOCK

3

SET DATE

4

ENGINEER PASSCODE

5

CONFIGURE CHIME

01-0

6

CONFIGURE 24 HR OMIT GROUP

01-A

7

PRINT SYSTEM LOG

8

CONFIGURE PART-SET GROUPS

P5--

9

VIEW SYSTEM LOG

Ur.00

0

RESET MASTER USER

E2--

ENGINEER MENU 1

E1--

RETURNING TO UNSET

1. From E | - press [w].
2. The display will show 'E19 00 5 1LE'.
3. This message is cleared by entering a valid user passcode.

SELECTING USER MENU 1

1. From E | - press [0].
2. The display will show ' | -'.
3. Refer to 'User Operating Instructions' for full details.



Menvier Security Ltd.
Kenn Road, Clevedon,
Bristol BS21 6LH, England

Tel: +44 (0)1275 870078
Fax: +44 (0)1275 343453

Email: menvier.security@dial.pipex.com
Internet: <http://www.menviersecurity.co.uk>